

# **Photo Enforcement Issues**

**Virginia Transportation Conference  
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**INSURANCE INSTITUTE  
FOR HIGHWAY SAFETY**



**Why photo enforcement?**



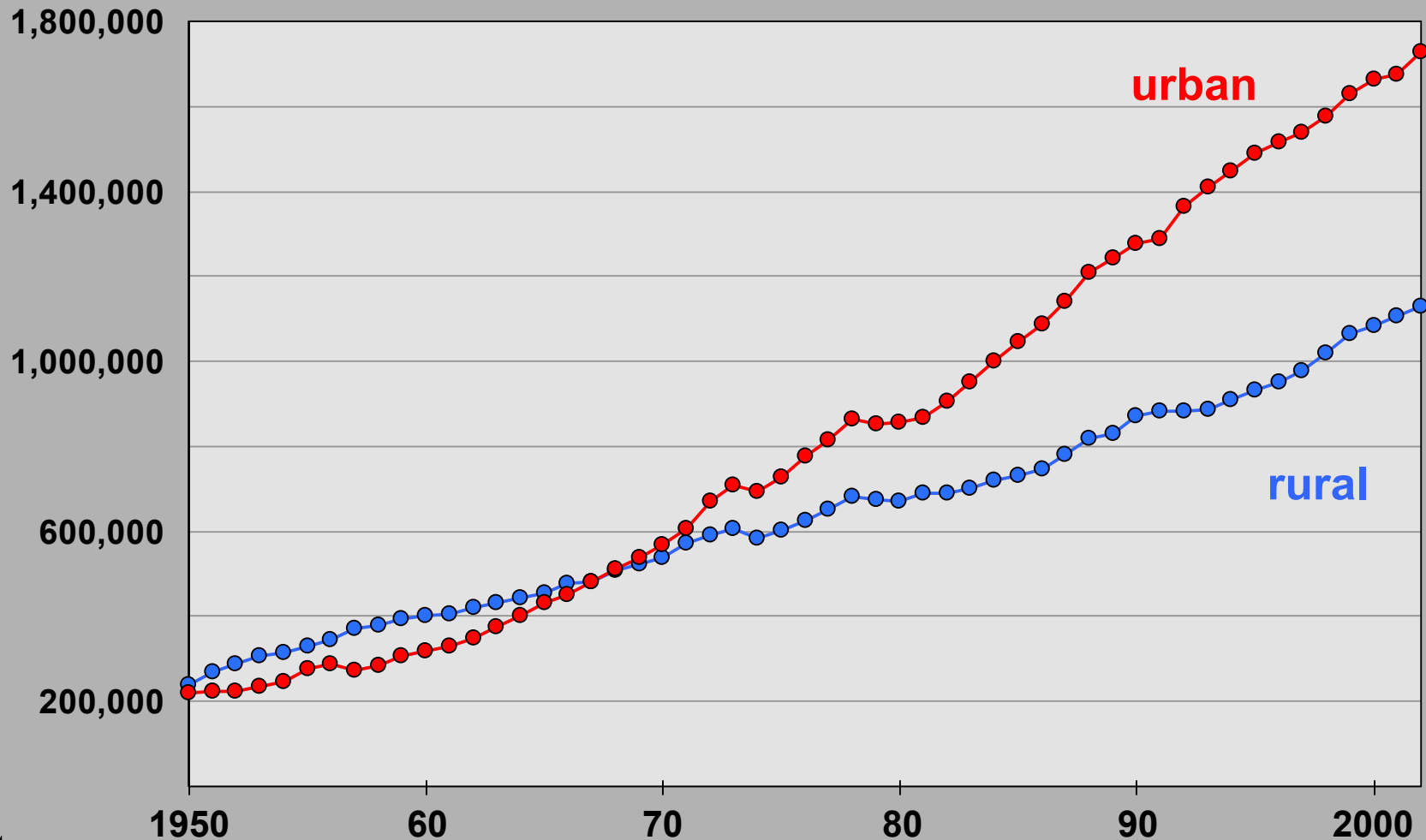
Speeding and disregarding traffic controls are principal causes of motor vehicle crashes

# Limitations of conventional enforcement

- ◆ Other priorities such as violent crime and homeland security limit resources for traffic enforcement
- ◆ It can be difficult to observe speeds at the worst places and times
- ◆ High-speed pursuit can be dangerous for police and civilians
- ◆ Reductions in violations achieved through conventional enforcement are temporary

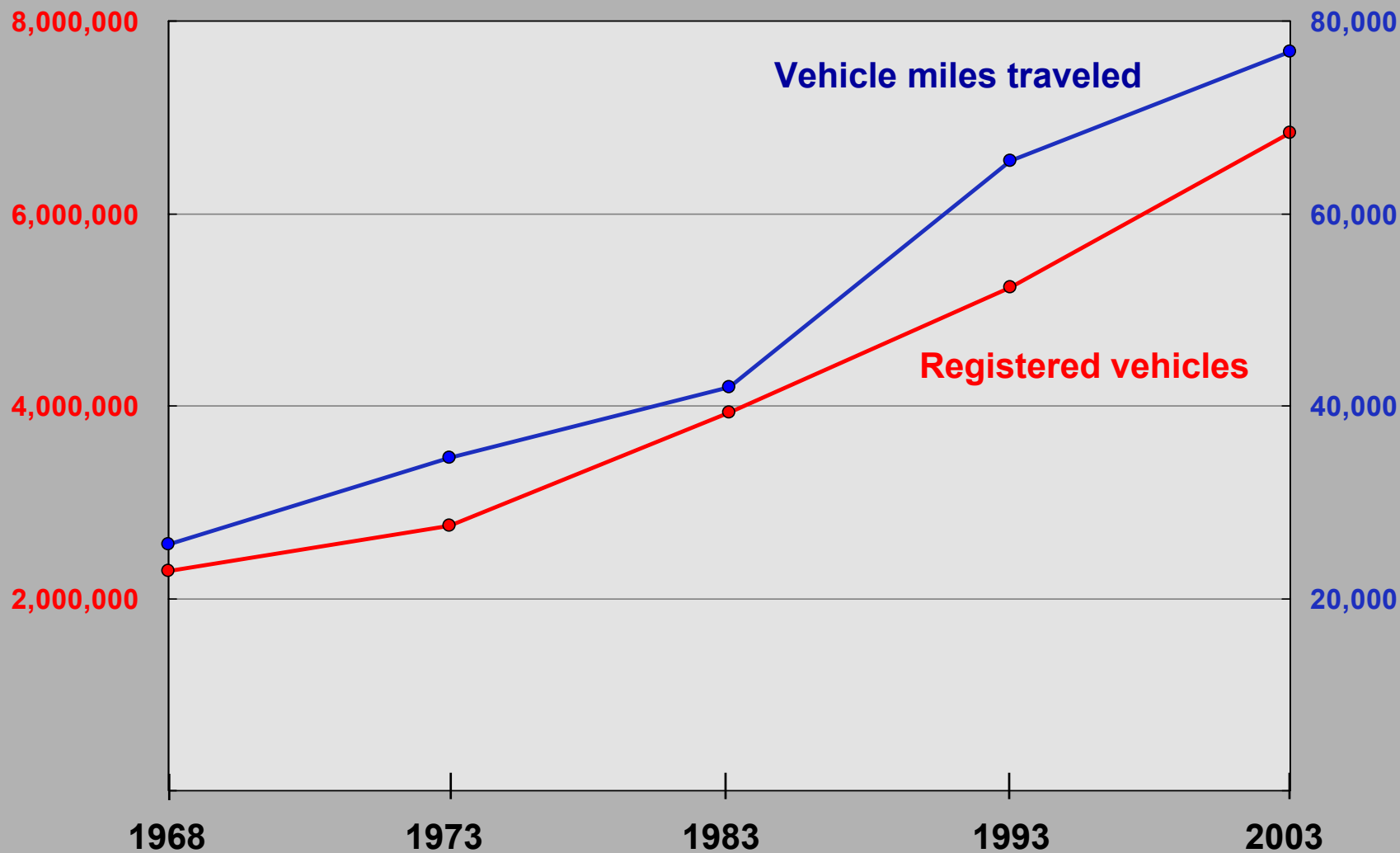
# Police resources have not kept pace with vehicle travel

Vehicle miles traveled 1950-2002, in millions



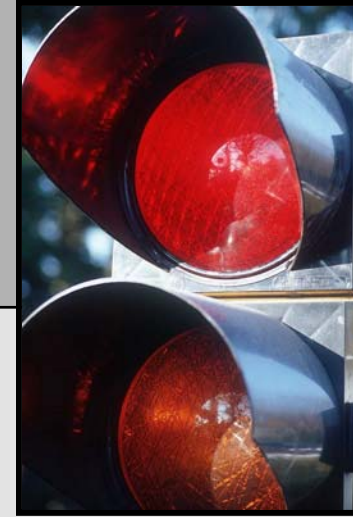
# Virginia travel trends

## 1968-2003



# Red light running crashes

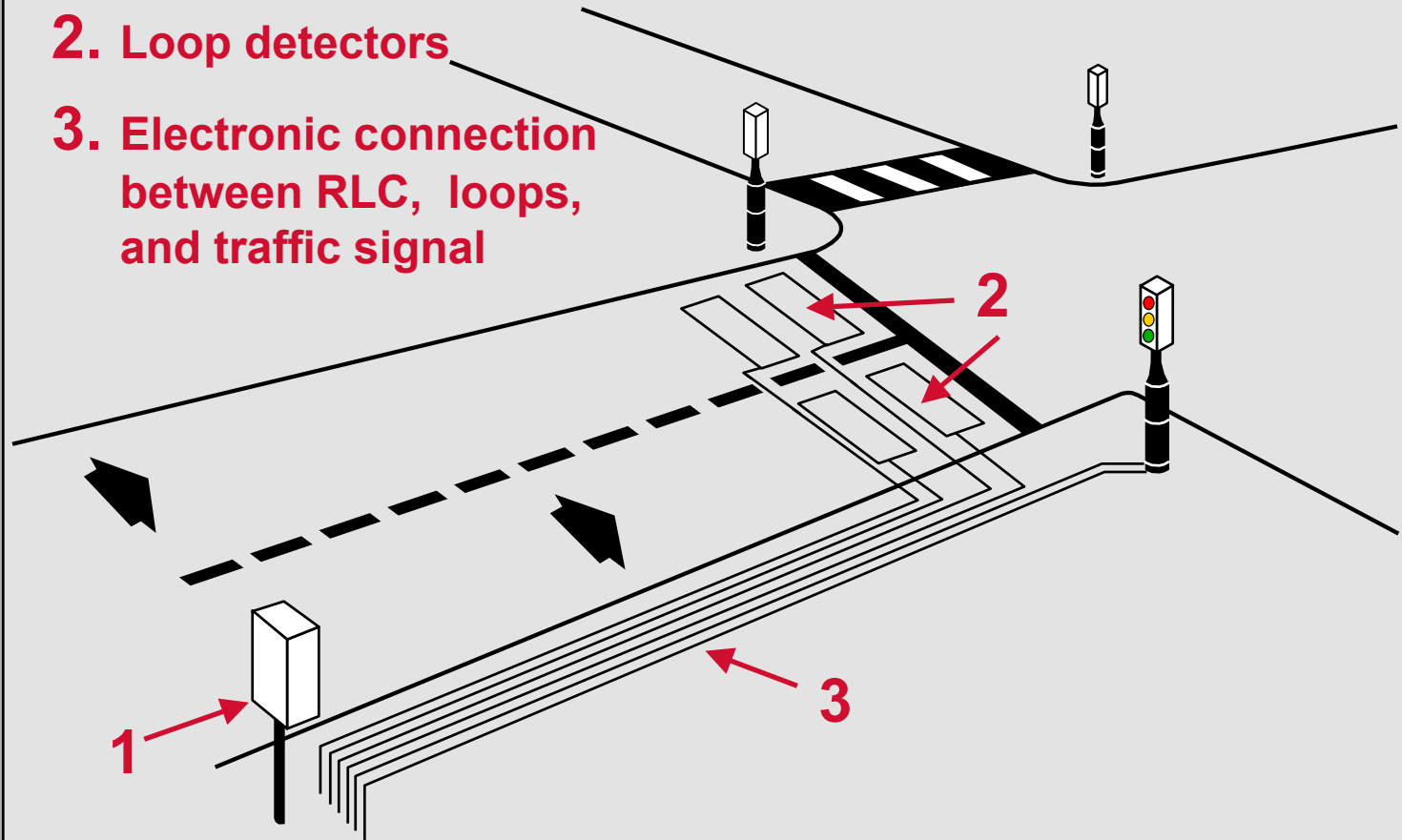
U.S. 2003



- ◆ 206,000 total crashes
- ◆ 101,000 injury crashes -- 176,000 persons injured
- ◆ 848 fatal crashes -- 934 persons killed

# Red light camera system components

1. Red light camera
2. Loop detectors
3. Electronic connection between RLC, loops, and traffic signal







*Typical violation photo sequence*









# Characteristics of red light violators and compliers

## Virginia drivers, 60-month driver record

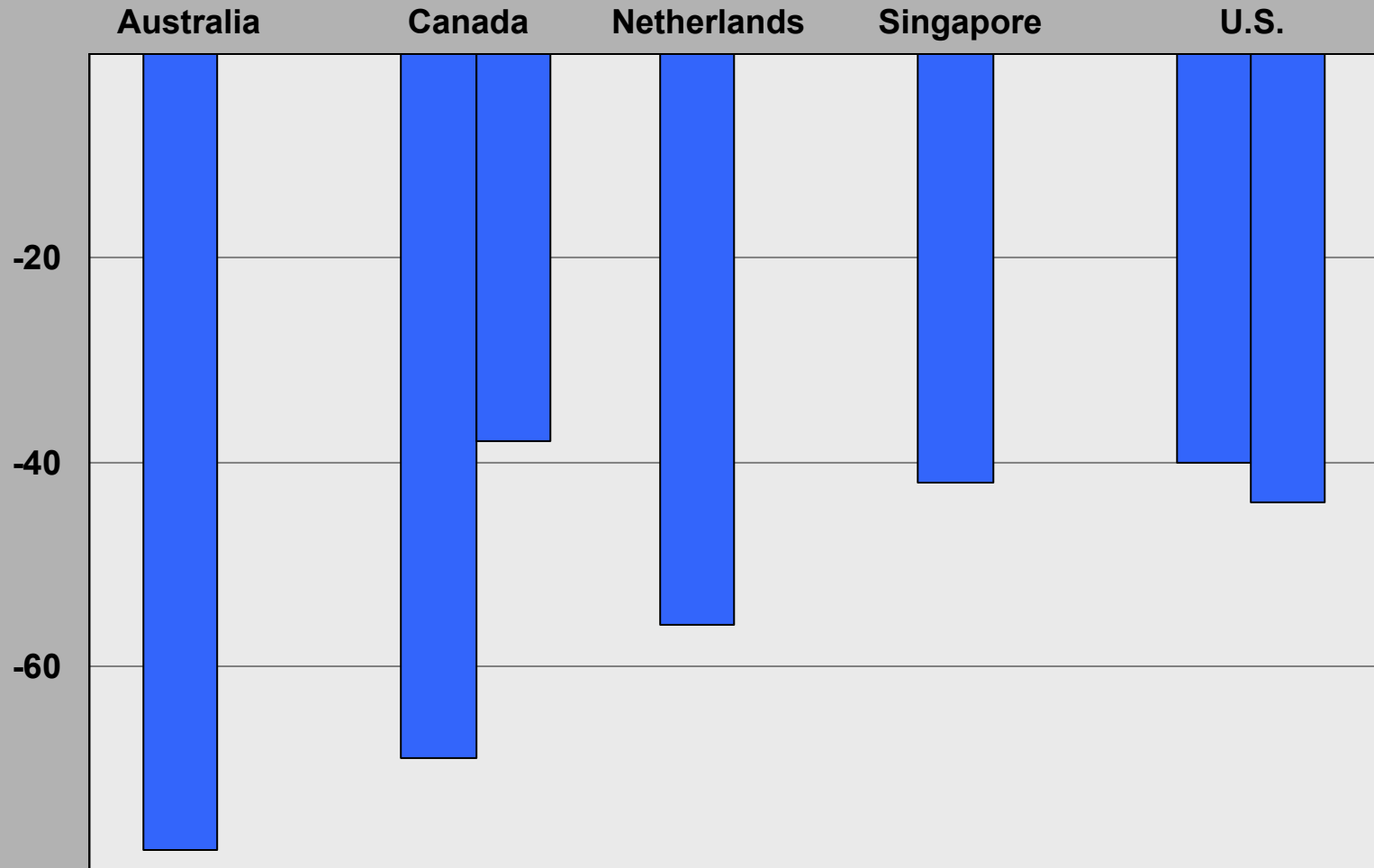
	Violators	Compliers
Under age 30	29%	14%
2+ speed convictions	22%	7%

# Effects of red light cameras on violations:

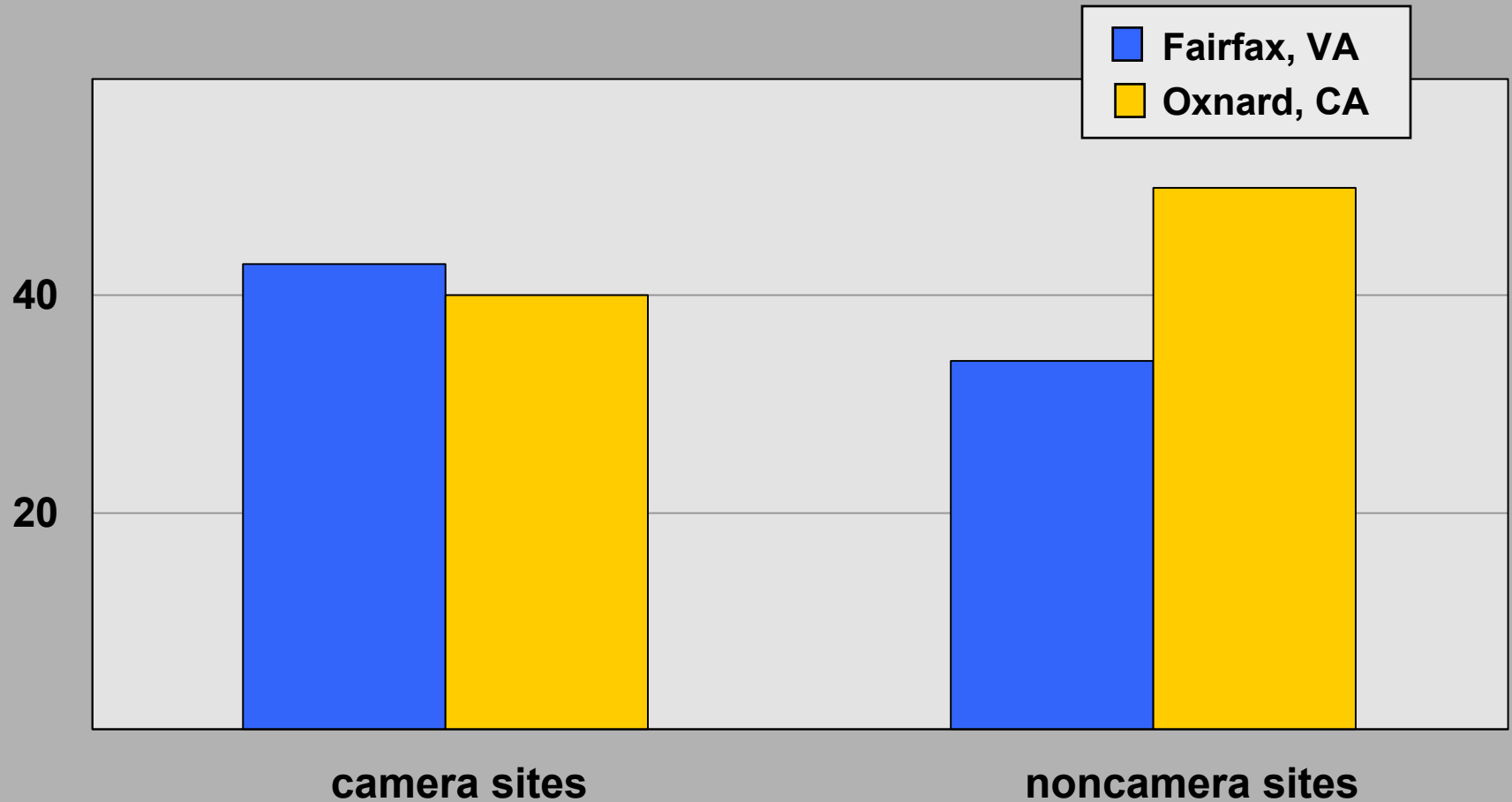
Published evaluations of red light camera programs provide clear and consistent evidence that camera enforcement can substantially reduce red light violations

# Percent reductions in red light running violations

## Intersections with cameras



# Percent reductions in red light violations per 10,000 vehicles

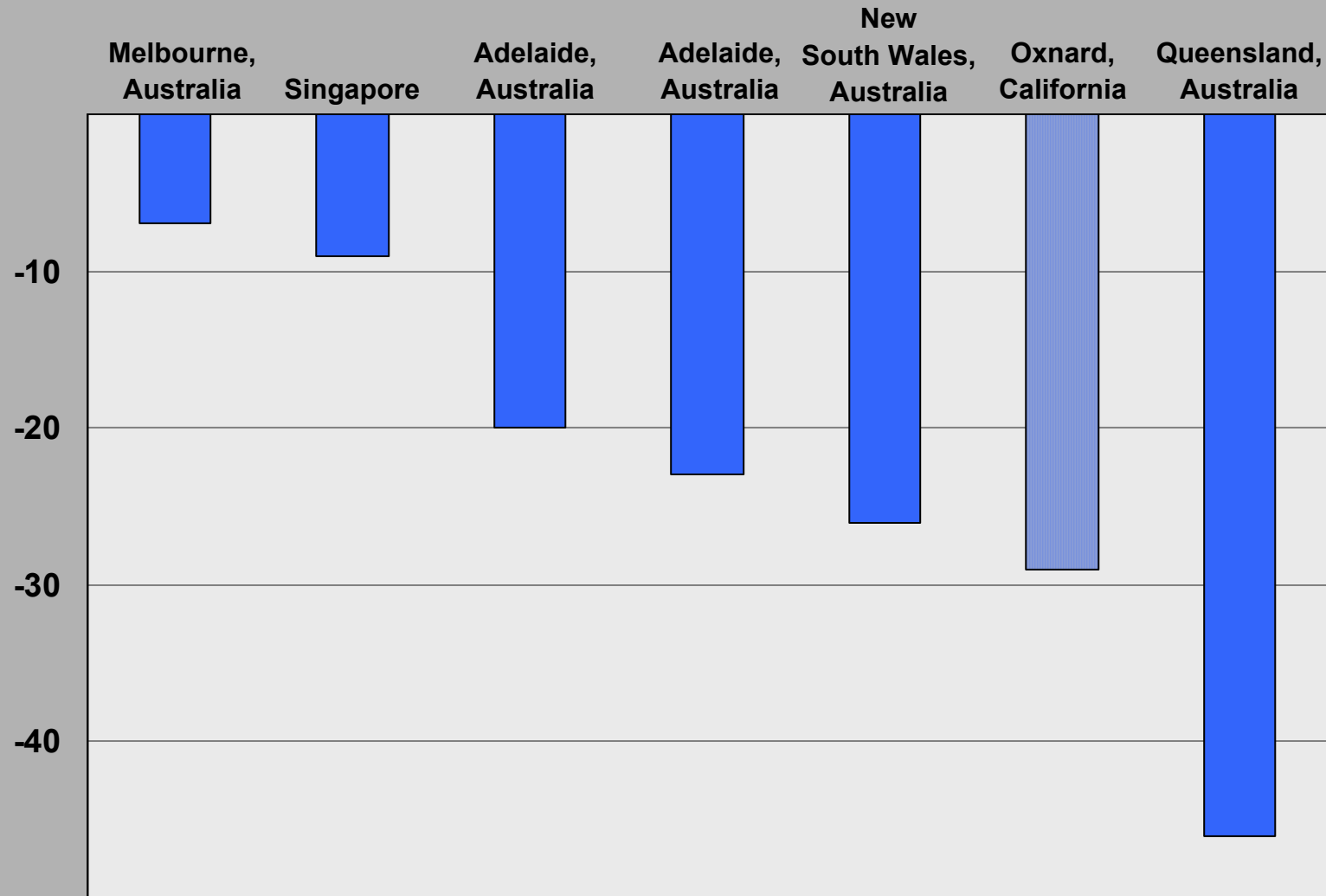




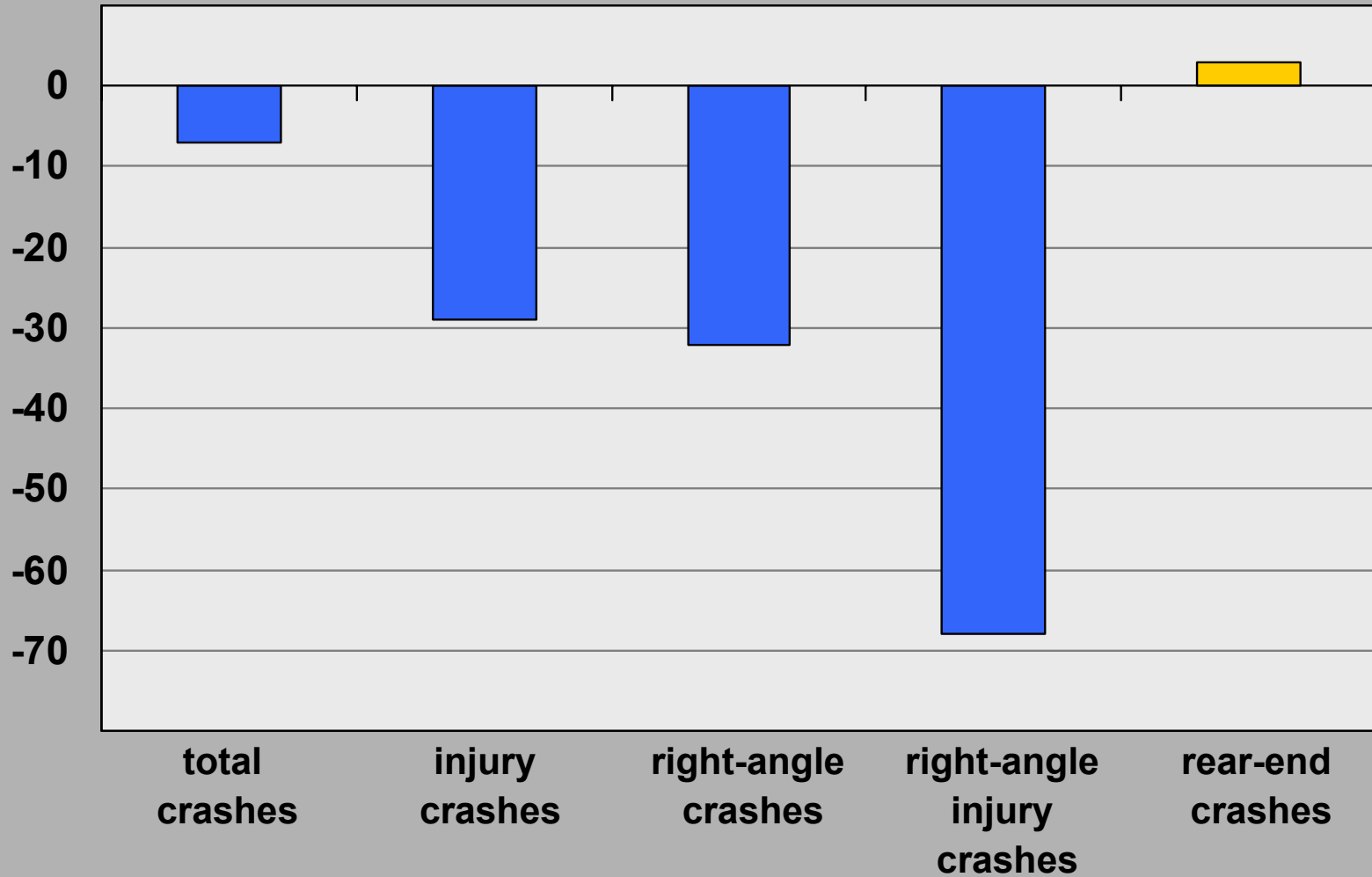
# Effects of red light cameras on crashes:

- ◆ Evaluations of red light camera programs report a range of injury-crash reductions associated with camera enforcement

# Percent reductions in red light running crashes with injuries



# Estimated effects of red light camera enforcement in Oxnard, CA



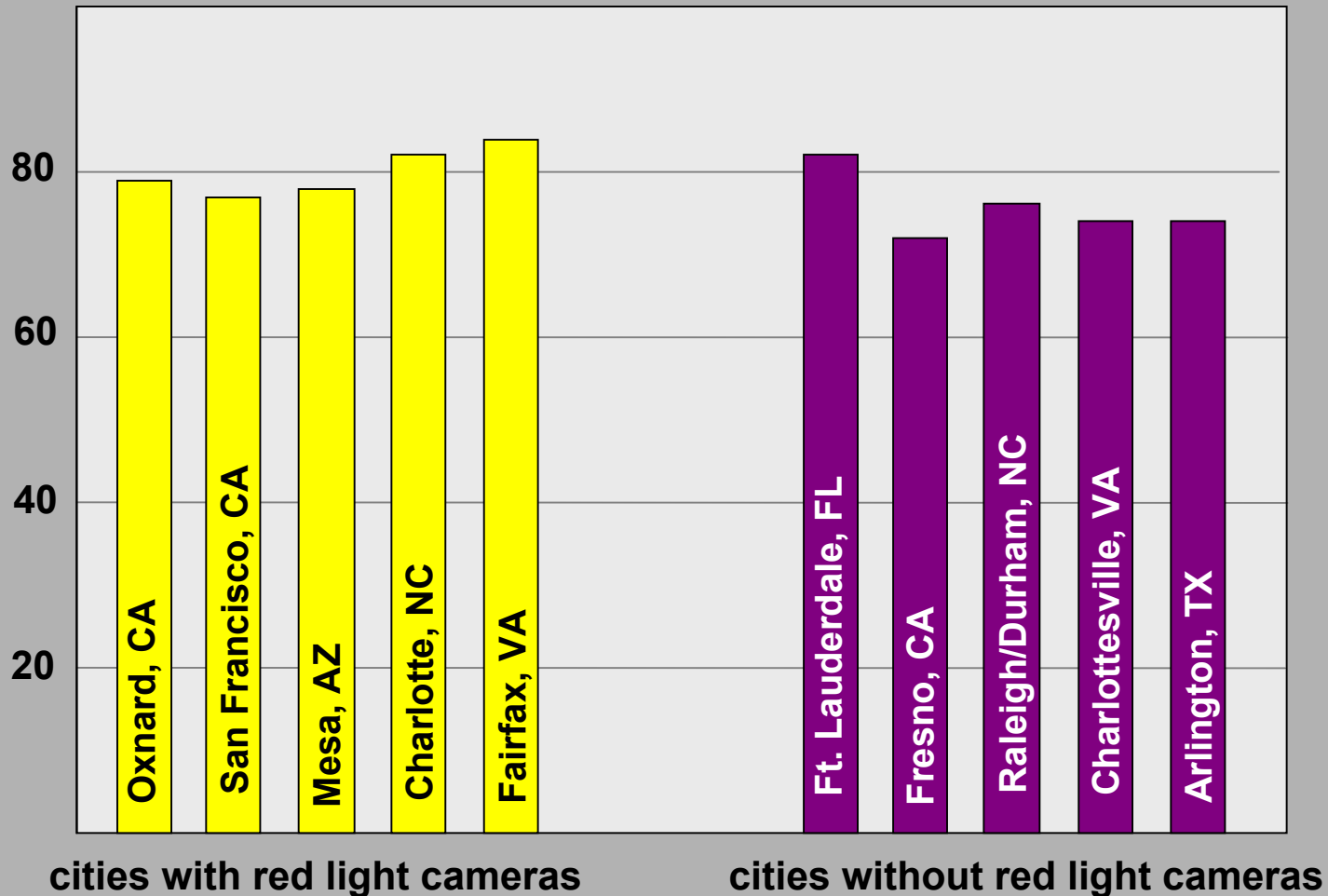
# NCHRP Synthesis 31

## Impact of red light camera enforcement crash experience

- ◆ Based on available information, red light cameras can be an effective safety countermeasure.
- ◆ In general, red light cameras can bring about a reduction in the most severe angle crashes with, at worst, a slight increase in less severe rear-end crashes.

# Percent of drivers who support red light cameras

May 1999



# Jurisdictions with red light cameras, 2004

## **Arizona**

Chandler  
Mesa  
Paradise Valley  
Phoenix  
Scottsdale  
Tempe

## **California**

Bakersfield Beverly Hills  
Cerritos  
Compton  
Costa Mesa  
Culver City  
Cupertino  
El Cajon  
Escondido  
Fremont  
Fresno  
Fullerton  
Garden Grove  
Hawthorne  
Indian Wells  
Inglewood  
Long Beach  
Los Angeles  
Los Angeles City  
County  
Montclair  
Montebello  
Oxnard  
Pasadena

Rancho Cucamonga  
Redwood City  
Sacramento City  
Sacramento County  
San Buena Ventura  
San Diego  
San Francisco  
San Juan Capistrano  
Santa Ana  
Solana Beach  
South Gate  
Upland  
Ventura  
West Hollywood  
Whittier

## **Colorado**

Boulder  
Denver  
Fort Collins  
Northglenn

## **Delaware**

Dover  
Seaford  
Wilmington

## **District of Columbia**

## **Georgia**

Decatur  
Marietta  
Rome  
Savannah

## **Illinois**

Chicago

## **Maryland**

Anne Arundel County  
Annapolis  
Baltimore City  
Baltimore County  
Bel Air  
Bladensburg  
Bowie  
Charles County  
Cheverly  
College Park  
Cottage City  
Forest Heights  
Greenbelt  
Howard County  
Hyattsville  
Laurel  
Landover Hills  
Montgomery County  
Morningside  
Prince Georges County  
Riverdale Park  
Rockville

## **New York**

New York City

## **North Carolina**

Cary  
Charlotte  
Fayetteville  
Greensboro  
High Point

Indian Trail  
Marshville  
Monroe  
Raleigh  
Rocky Mount  
Wilmington

## **Ohio**

Dayton  
Toledo

## **Oregon**

Beaverton  
Medford  
Portland

## **Rhode Island**

Providence

## **South Dakota**

Sioux Falls

## **Tennessee**

Germantown

## **Texas**

Garland

## **Virginia**

Alexandria  
Arlington  
Fairfax City  
Fairfax County  
Falls Church  
Vienna  
Virginia Beach

## **Washington**

Lakewood

# Virginia jurisdictions using red light cameras

- ◆ Alexandria
- ◆ Arlington
- ◆ Fairfax City
- ◆ Fairfax County
- ◆ Falls Church
- ◆ Vienna
- ◆ Virginia Beach

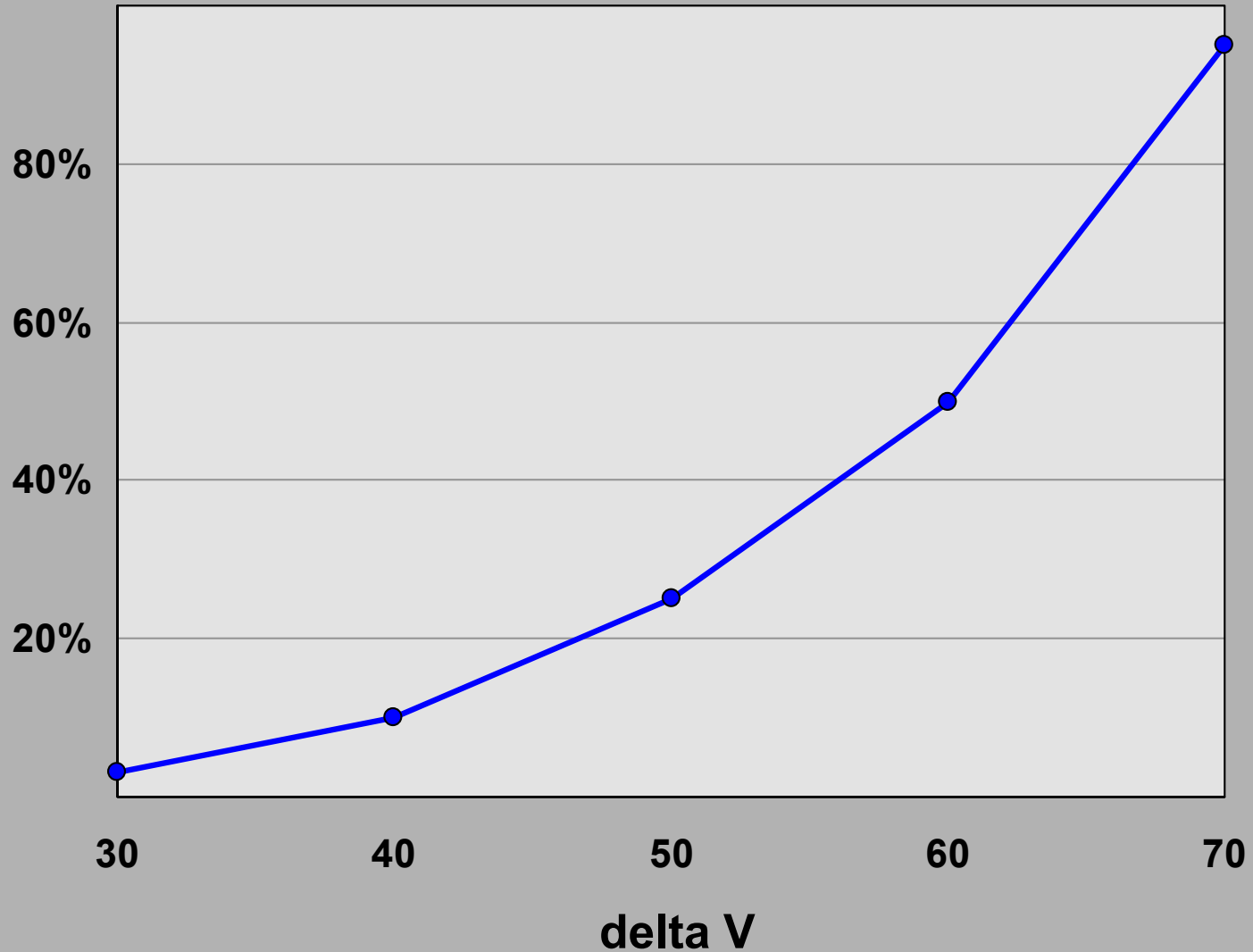
# High speed is one of the most prevalent factors contributing to motor vehicle crashes





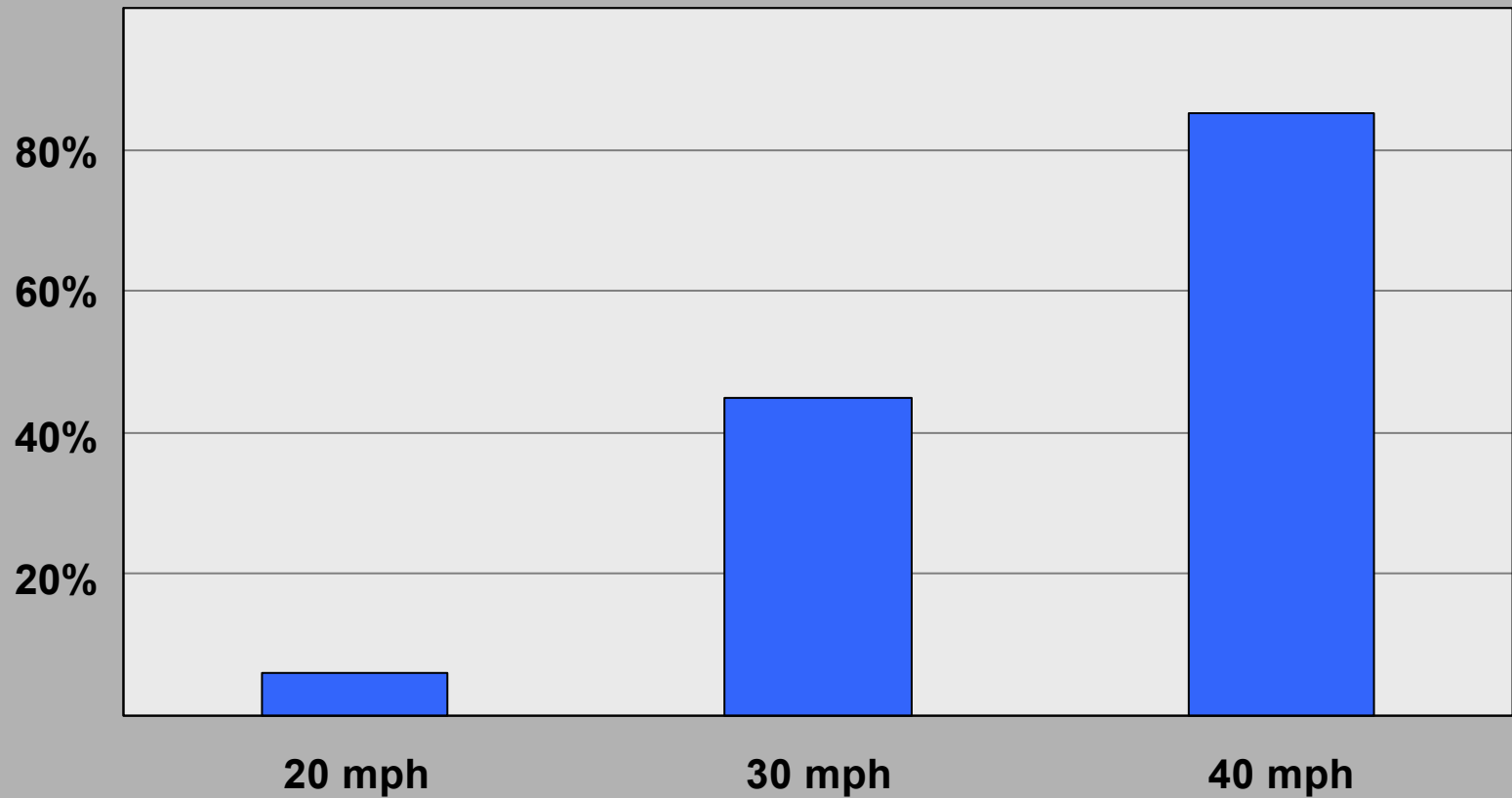
# Driver fatality risk in relation to delta V

Probability of death

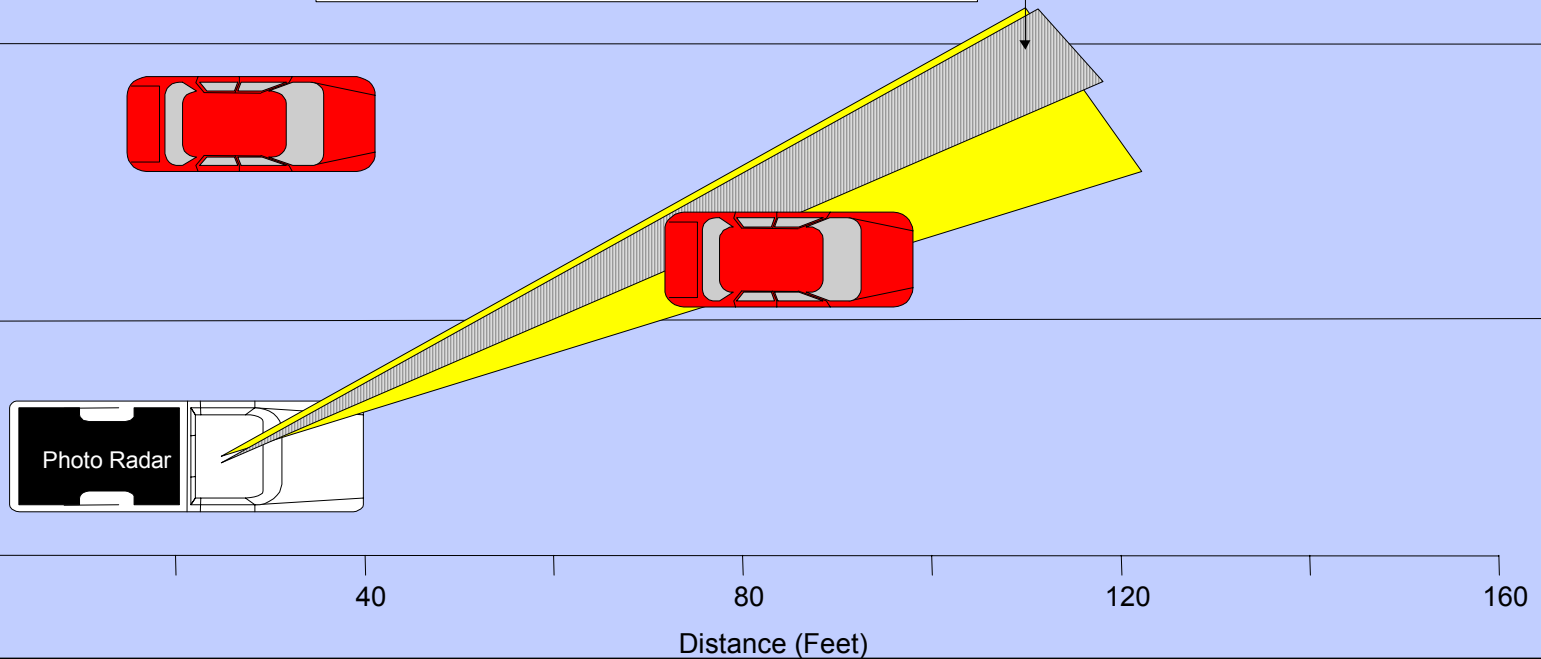


# Pedestrian fatality risk in relation to impact speed

## Probability of death



Based on the radar calculated speed of the offending vehicle, a receding violation image is taken when the vehicle is in the field of view of the camera.



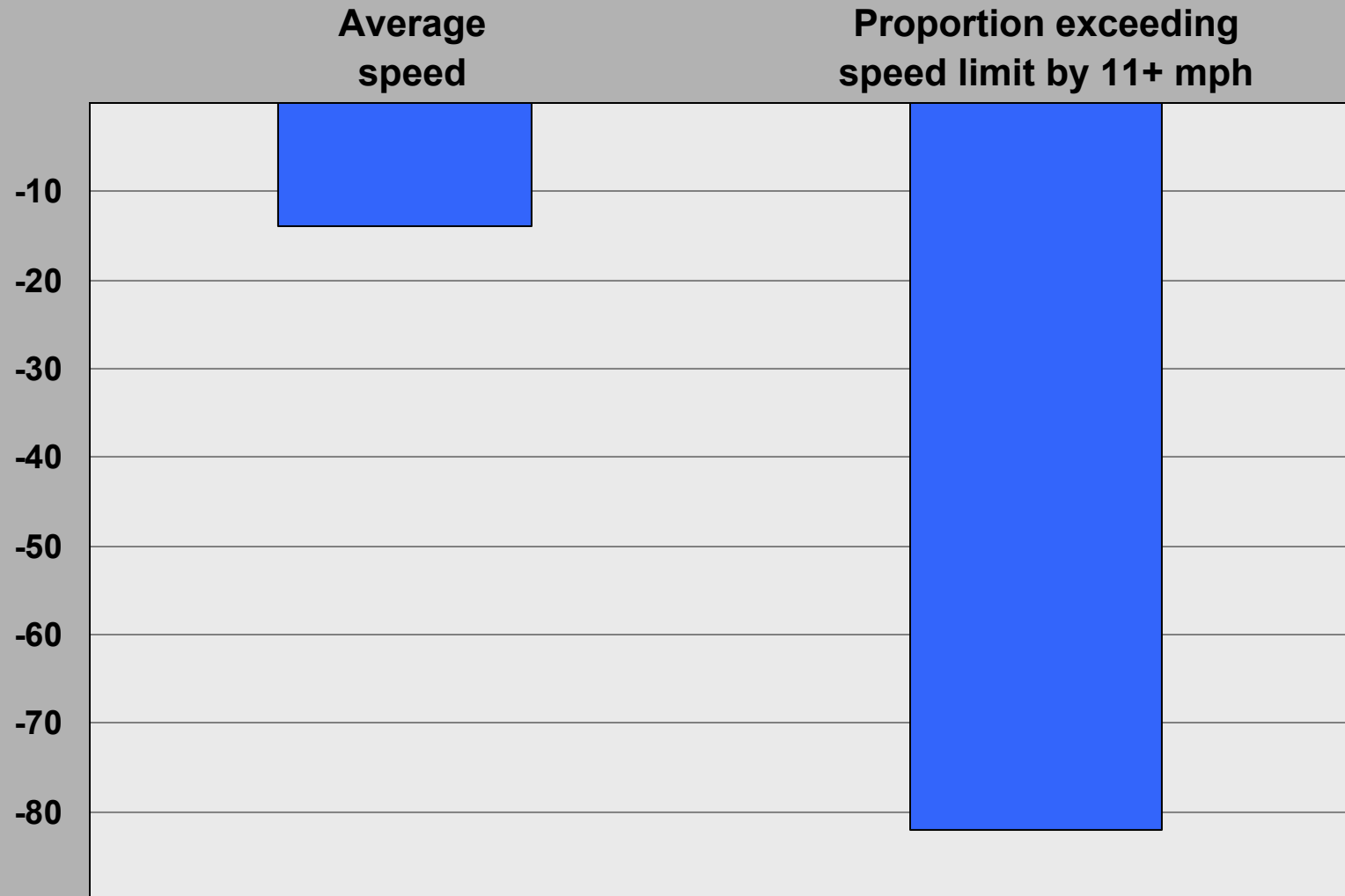
**Speed cameras are activated when a vehicle is traveling significantly faster than the posted limit.**



- ◆ Speed cameras are typically accompanied by a police presence to maximize deterrent effects.
- ◆ Portable units are placed at the roadside in or near a police car.

# Evaluation of speed cameras in Washington, D.C.

## Percent change: 6 months after enforcement

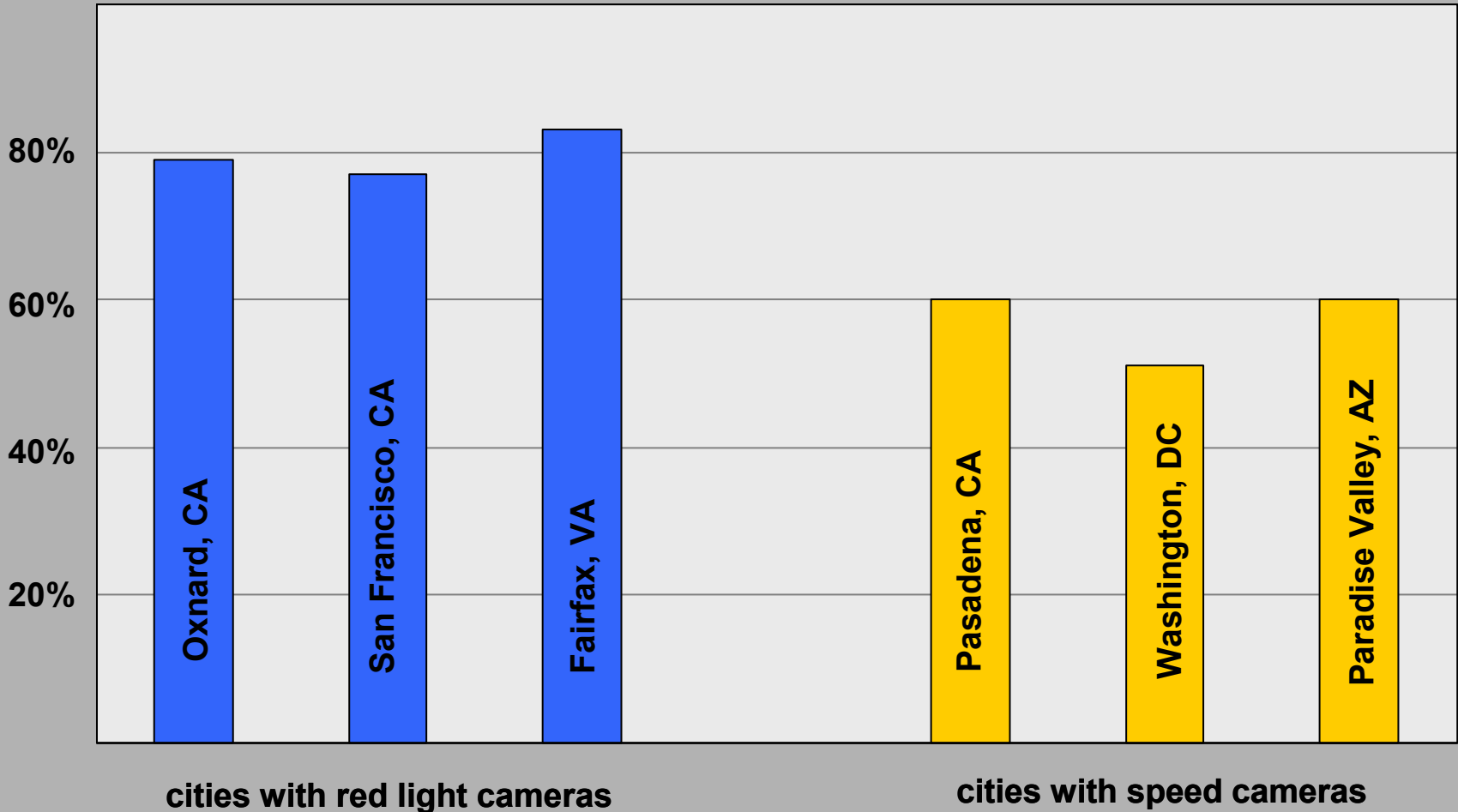


# Evaluations of speed camera enforcement

British Columbia	<ul style="list-style-type: none"><li>◆ 25% reduction in speed-related collision</li><li>◆ 11% reduction in crash victims transported by ambulance</li><li>◆ 17% reduction in fatalities</li></ul>
Norway	<ul style="list-style-type: none"><li>◆ 20% reduction in the number of injury crashes</li></ul>
Victoria, Australia	<ul style="list-style-type: none"><li>◆ 18% reduction in the number of injury crashes</li><li>◆ 28-40% reduction in the severity of injuries resulting from crashes</li></ul>

# Public opinion regarding speed cameras

## Percent of drivers that support automated enforcement



# Legal issues

## Photo enforcement authorized by statute

- ◆ 14 states and DC – CA, CO, DE, GA, IL, MD, NY, NC, OR, OR, PA, TX, UT, VA, WA
  - 8 are statewide; 7 are limited to specific cities

## Authorized under “home rule”

- ◆ 10 cities in AZ, IL, OH, TN



# All Constitutional challenges have failed in court

## Due process

- ◆ Not all drivers photographed receive tickets; owner is presumed to be driver; statutes do not state where warning signs should be placed; delay in receiving ticket too long

## Equal protection

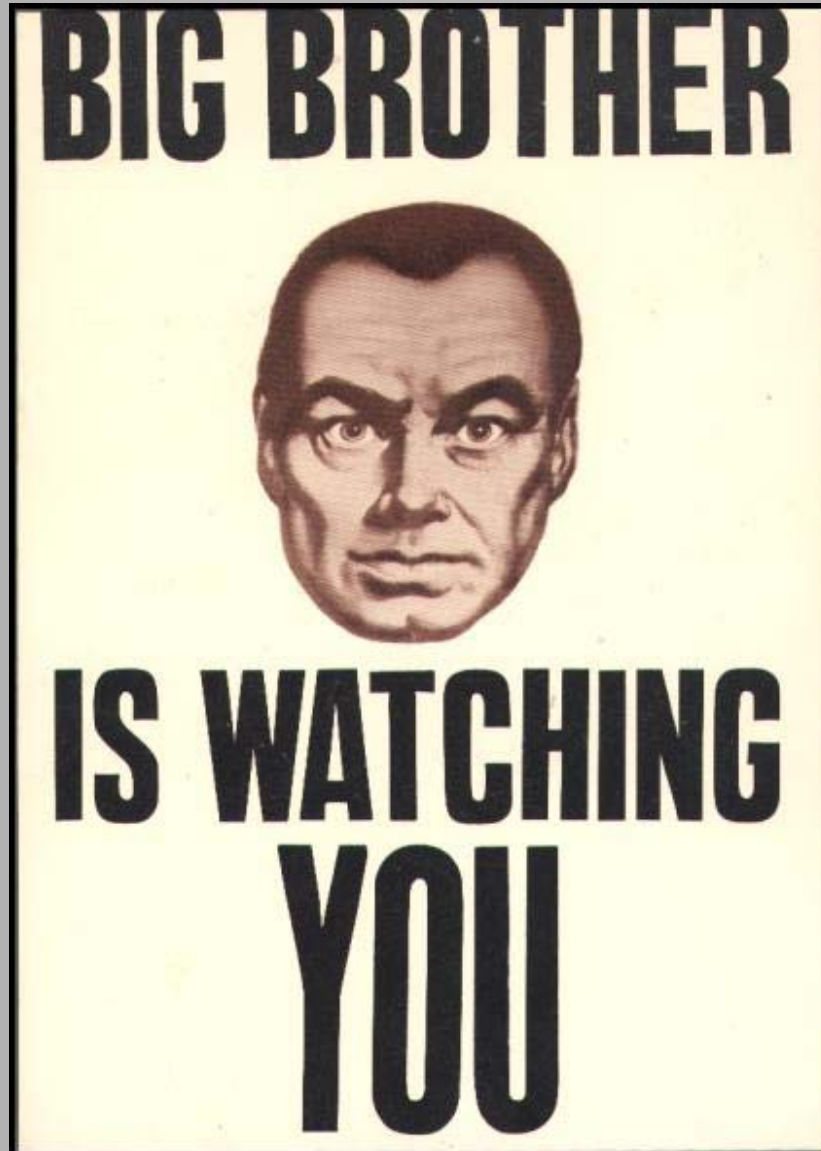
- ◆ Some violators of the same offense pay a higher fine and receive points while others do not

## Fourth amendment (search/seizure)

- ◆ Photographing a vehicle amounts to seizure

# Privacy concerns

Raised in public, but not in court



# Privacy issues


- ◆ Driving is a regulated activity on public roads
- ◆ No expectation of privacy in motor vehicle
- ◆ No right to keep license plate private – required to be in plain view for a reason
- ◆ “Although cameras operated by the gov’t are a concern regarding privacy issues, those concerns are outweighed by legitimate concerns of safety on public streets.” Agomo v. Williams, Supreme Court D.C. (2003)

# Privacy issues

- ◆ Surveillance cameras are widely used in public places such as airports, transit terminals, freeways, schools, and other gov't buildings, for safety purposes.
- ◆ These applications observe each person simply passing by, whereas traffic enforcement cameras are limited to violators.

# Fairness issues

- ◆ Red light cameras are active only during red phase and are triggered only by vehicles that enter after light has turned red
- ◆ A delay is typically used to ignore minor violations
- ◆ Enforcement is publicized to deter violations
- ◆ Trained enforcement personnel review photographic evidence



“We found that the red light camera programs are not revenue enhancing for most of the local governments we visited and that most programs operate on a break-even basis or a slight deficit.”

California State Auditor report, 2002

# Benefits of photo enforcement

- ◆ Enhanced safety through deterrence
- ◆ Reductions in violations and collisions
- ◆ Consistent enforcement without excessive penalty
- ◆ Safer for police officers and bystanders
- ◆ Unbiased enforcement
- ◆ Funded by violators



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